FROM THE ACTIVITY OF THE SPECIALIZED SCIENTIFIC SEMINARS OF THE ECONOMIC CYBERNETICS DEPARTMENT

Three scientific seminars: the seminar of "Operations Research with Applications in Economy", the seminar of "Economic-Social Prognosis" and the seminar of "Informatic Systems with Applications in Economy" are functioning as part of the Laboratories of the Economic Cybernetics Department. Their weekly or bi-monthly sessions discuss important theoretical and practical problems resulting from the fundamental research activity and on a contract basis as well as from the present requirements of economic-social development.

The scientific seminars represent a concrete way of cooperation between various collectives concerned with similar problems, for the scientific debate of various points of view and of the concrete possibilities of drawing up various models, methods or systems.

The activity of the seminar of Economic-social Prognosis under the scientific guidance of academician, professor Manea Mănescu enjoys particular prestige. Carrying on their current activity in this seminar are members of the academic staff and researchers of the Economic Cybernetics Department, of the Department for the Planning of National Economy, of other departments of the Academy of Economic Studies, specialists of high qualification and with long practical experience of the State Planning Committee, the Ministry of Finance, the General Board of Statistics, the Ministry of Foreign Trade and International Cooperation, of other economic ministries as well as specialists from production and researchers of the Central Institute of Economic Research, the Central Institute of Mathematics, etc.

For a closer blending of education with research and production, a big number of under-graduate students are also carrying on their activity within the seminars.

The seminar discusses various views and concrete methods of elaborating the prognosis models of economic-social development — an extremely important field for forecasting the future of socialist Romania — the concrete way of applying the concepts and techniques of economic cybernetics and of the electronic computers.

As a result of the fruitful collaboration between various groups of researchers and specialists and of the permanent scientific guidance by the tutor of the seminar, a number of prognosis models of economic growth have been achieved, among which we mention:

— a preliminary macro-economic model of prognosis of economic growth in the Socialist Republic of Romania until 1990;

— a macro-economic model of prognosis of long-term economic growth by taking into consideration the foreign trade activity;

— a multisectorial model of economic growth;

— a plurisectorial model of prognosis based on the evolution of fixed assets and of investments.

The elaborated models have been continuously improved as a result of the scientific debates which took place within the seminar, this enabling the passing to the elaboration of numerical models, on the basis of the available statistic and plan estimates, so that these models should become an efficient working instrument for the prognosis and planning activity.

Parallel with the presentation and discussion of some of the models, a number of aspects linked with the concrete way of applying economic cybernetics in the elaboration and solving of economic-social prognosis models as well as some major and methodological problems of great importance in their elaboration have also been discussed and clarified as part of the seminar.

The themes of the seminar of "Operations Research" with applications in economy are centred round theoretical and practical problems on the methods of operations research and its applications in economy as well as on problems of the information system analysis. Both the final or intermediate stages of works carried out on a contract basis with a view to approving them as well as problems pertaining to the development of the operations research techniques and their application in new domains are discussed in the seminar.

We mention from among the works drawn up on a contract basis and presented in the seminar with a view to improving and approving them:

— The modelling of the elaboration of the production plan at the Brazi Industrial Group for Refineries and Petrochemistry;

— The programming of the production of a building site with the aid of the coordinating chart;

— The system of the management of investments at the Brazi Industrial Group for Refineries and Petrochemistry. A number of documentary syntheses, such as: stochastic programming, the Branchand-Bound method, programming in whole numbers and non-linear programming have been presented in the seminar with a view to making known the latest novelties in the field of operations research (the theory of graphs, mathematical programming, the theory of stocks, the theory of simulation, etc.) for applying them in solving concrete problems or for perfecting them in special cases.

Original fundamental research was also present in the activity of the seminar. The discussion of the elaborated works has contributed to their improvement. In this connection, we mention the works:

— The proposal on the systematization and classification of the methodologies of information-decision system analysis;

— The simulation of some stocking stochastic phenomena;

— The estimation of network flow;

— Stochastic programming with several objective functions.

A cycle of exposes on the efficient Programming of production, a theme which has for many years been tackled by the operations research group with a view to finding algorithms programmable on the computer and to finding some applicable methods in the concrete case examined at the "Electromagnetica" Works, has lately been initiated within this seminar.

The themes of the third seminar are focused on the analysis, design and achievement of management informatic systems or of some subsystems belonging to an integrated system. Both problems of fundamental research on informatics in general and practical problems resulting from the activity carried on on various contracts are discussed.

Great part of the sessions of the informatics seminar was based on the presentation of theoretical and practical problems on the organization and exploitation of data banks, to this end using the world experience in this domain. From the literature of speciality, the IDS (Integrated Data Store) System, the CODASYL Report on Data Banks, the Organization of files on the basis of dispersed charts have been presented, as well as original works, such as:

— The SA-V algorithm for retrieval after value segments within an attribute;

— System for the matriculation of an enterprise staff.

Another category of works presented in the seminars referred to the applicative programmes of the IBM firm or of our researchers, themes which were discussed from the point of view of approaching and solving the respective problem and from the point of view of their utilization and generalization. From this group of problems, we mention: the presentation of the PICS (BOMP) system, the presentation of the CLASS, CAPOS, GPSS system sent by the IBM firm, or REMUS (multiple selective retrieval), CROCODIL (rectangular cutting), PERT, etc. elaborated by the researchers of our department.

Problems linked with the activity on contracts have also been presented with a view to discussing, improving and approving them, or with the stages of the respective works. From this category, we mention:

— Algorithms and programmes for the efficient programming of production with application at the Buzău Plastics Enterprise;

— System for the control of deliveries and the observance of discipline stipulated by contract at the Electromagnetica Works;

— System for spacing out work at a big enterprise.

Through the themes approached, through the discussions generated, and by mobilizing a big number of researchers, specialists in production, academic staff and students, the scientific seminars prove extremely efficacious. They represent a form of information among specialists on topical issues put by the theory and practice of economic cybernetics and informatics, a way of developing and perfecting the works presented, a means for the development and assertion of the Romanian school of economic cybernetics and of other modern disciplines.

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